UNITED STATES PATENT AND TRADEMARK OFFICE

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
   Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *1-20* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date *3,6*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

The following title is suggested: **Method and Apparatus for communicating**

data in GPRS network based on a plurality of traffic classes

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent granted
on an application for patent by another filed in the United States before the invention by the applicant
for patent, except that an international application filed under the treaty defined in section 351(a) shall
have the effects for purposes of this subsection of an application filed in the United States only if the
international application designated the United States and was published under Article 21(2) of such
treaty in the English language.

2. Claims 1,3-16, and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by

Barany (U.S. 2003/0189900A1).

Regarding Claims 1, 5 and 16, Barany'900 discloses a General Packet Radio

Service (GPRS) network **(see FIG. 4, GPRS network)** comprising a plurality of

GPRS Support Nodes (GSNs) **(see FIG. 4, LR1/SGSN 302, BR1/SGSN 20,**

ER1/GGSN 304, BR2/GGSN 22, and ER2/GGSN 306), including at least one

Serving GPRS Support Node (SGSN) **(see FIG. 4, LR1/SGSN 302 or BR1/SGSN**

20) in communication with at least one Gateway GPRS Support Node (GGSN) **(see**

FIG. 4, ER2/GGSN or BR2/GGSN 22) via an Internet Protocol (IP)-based network

(see **FIG. 4, network 320,322, or 324 is the Internet based network; see page 1,**

paragraph 5) comprising a plurality of intermediate nodes (see **FIG. 4,**

intermediates routers 350, 352 and 27; see page 5-6, paragraph 46 and 60)

method for communicating data across the IP-based network according to a plurality

of traffic classes (see **FIG. 5, plurality of traffic classes/queues**), the method

comprising steps of:

defining a plurality of delay-differentiated paths (see **FIG. 4,**

identifying/defining plurality of DS routes/paths according to DiffServ/ DS/flow-

label/traffic-class labels between the routers; see page 5, paragraph 46) within the

IP-based network between each of the at least one SGSN (see **FIG. 4, LR1/SGSN**

302 or BR1/SGSN 20) and each of the at least one GGSN (see **FIG. 4, ER1/GGSN**

304, BR2/GGSN 22, or ER2/GGSN 306; see page 6, paragraph 61), wherein each

of the plurality of traffic classes (see **FIG. 5, each of plurality of traffic**

classes/queues) has at least one delay-differentiated path of the plurality of delay-

differentiated paths corresponding thereto (see **FIG. 5 and see page 6, paragraph**

63-64; note that DS value in each packet maps/corresponds to each different

class of traffic, and different type of traffics are queued and routed toward

plurality of DS paths);

determining, by an ingress GSN of the plurality of GSNs (see **FIG. 4,**

input/ingress of router 20 of the plurality of routers 302,304,20,22, and 306), a

traffic class of the plurality of traffic classes corresponding to the data (see **page 5,**

paragraph 47 and page 6, paragraph 61; note that each router has a capability

to classify the received traffic);

assigning, by the ingress GSN, a label to at least a portion of the data

according to the traffic class **(see page 4-5, paragraph 43, 47; each PHB group**

label is mapped/assigned to each packet (i.e. a packet carries portion of the data)

according to the QoS of traffic type/class) to provide labeled data **(see page 6,**

paragraphs 61-62; note that each traffic class is metered and marked/label by

the appropriate PHB to form/provide PHB label/level packet); and

routing, by the ingress GSN to an egress GSN of the plurality of GSNs **(see**

FIG. 4, routing input/ingress traffic to output/egress router 22 of plurality of

routers 302,304,20,22, and 306), the labeled data through a first delay-differentiated

path of the plurality of delay-differentiated paths based on correspondence of the

label to the first delay-differentiated path **(see page 6-7, paragraph 63-65,67; note**

that each PHD group label packet is routed through the first DS path of

plurality DS paths according to the PHD group label/parameter (i.e. streaming,

conversation, interactive, and etc.)).

Regarding Claims 10 and 11, Barany'900 discloses a General Packet Radio

Service (GPRS) network **(see FIG. 4, GPRS network)** comprising a plurality of

GPRS Support Nodes (GSNs) **(see FIG. 4, LR1/SGSN 302, BR1/SGSN 20,**

BR2/GGSN 22, and ER2/GGSN 306), including at least one Serving GPRS Support

Node (SGSN) **(see FIG. 4, LR1/SGSN 302 or BR1/SGSN 20)** in communication

with at least one Gateway GPRS Support Node (GGSN) **(see FIG. 4, ER2/GGSN or**

BR2/GGSN 22) via an Internet Protocol (IP)-based network **(see FIG. 4, network**

320,322, or 324 is the Internet based network; see page 1, paragraph 5)

comprising a plurality of intermediate nodes (**see FIG. 4, intermediates routers 350,**

352 and 27; see page 5-6, paragraph 46 and 60), a method for communicating data

across the IP-based network according to a plurality of traffic classes (**see FIG. 5,**

plurality of traffic classes/queues), the method comprising steps of:

determining, by an ingress GSN of the plurality of GSNs (**see FIG. 4,**

input/ingress of router 20 of the plurality of routers 302,20,22, and 306), a traffic

class of the plurality of traffic classes corresponding to the data (**see page 5,**

paragraph 47 and page 6, paragraph 61; note that each router has a capability

to classify the received traffic);

assigning, by the ingress GSN, a per-hop behavior (PHB) group of a plurality

of PHB groups (**see page 4-5, paragraph 43, 47; a PHB group label from**

various/plurality of PHB groups is mapped/assigned to several QoS of traffic

type/class) to the data based on the traffic class (**see page 6, paragraphs 61-62; note**

that each traffic class is metered and assigned by the appropriate PHB according

to the QoS),

transmitting, by the ingress GSN, a portion of the data to one of the plurality

of intermediate nodes (**see FIG. 4, each packet (i.e. a packet carries portion of the**

data) is send/transmitted by the BR1/SGSN 20 to one of the intermediate routers

352 within the network 312; see page 6, paragraph 60-61); and

handling, by the one of the plurality of intermediate nodes, the portion of the

data based on the PHB group (**see page 6-7, paragraph 63-65,67; note that since**

the BR1 is labeled/mapped the PHD group label/parameter (i.e. streaming,

conversation, interactive, and etc.), it is clear that each intermediate router must

handle each packet accordingly).

Regarding Claims 3 and 14, Barany'900 discloses wherein the ingress GSN

comprises one of the at least one SGSN (**see FIG. 4, BR1/SGSN 20 or LR1/SGSN**

302) and the egress GSN comprises one of the at least one GGSN (**see FIG. 4,**

BR2/GGSN 22 or ER2/GGSN 306).

Regarding Claims 4 and 15, Barany'900 discloses wherein the ingress GSN

comprises one of the at least one GGSN (**see FIG. 4, BR2/GGSN 22 or ER2/GGSN**

306) and the egress GSN comprises one of the at least one SGSN (**see FIG. 4,**

BR1/SGSN 20 or LR1/SGSN 302).

Regarding Claims 6, Barany'900 discloses wherein transmitting, by the

ingress GSN, the labeled data to one of the plurality of intermediate nodes (**see FIG.**

4, each PHB labeled/mapped packet (i.e. a packet carries portion of the data) is

send/transmitted by the BR1/SGSN 20 to one of the intermediate routers 352

within the network 312; see page 6, paragraph 60-61);

handling, by the one of the plurality of intermediate nodes, the labeled data

based on the traffic class (**see page 6-7, paragraph 63-65,67; note that since the**

BR1 is labeled/mapped the PHD group label/parameter (i.e. streaming,

conversation, interactive, and etc.), it is clear that each intermediate router must

handle each labeled/mapped packet accordingly).

Regarding Claims 7 and 18, Barany'900 discloses wherein each of the

plurality of traffic classes has a unique correspondence to one of a plurality of per-

hop behavior (PHB) groups, further comprising a step of:

assigning, by the ingress GSN, a PHB group of the plurality of PHB groups

(see page 4-5, paragraph 43, 47; a PHB group label from various/plurality of

PHB groups is mapped/assigned to the QoS of the traffic type/class) to the labeled

data based on the traffic class **(see page 6, paragraphs 61-62; note that each DS**

labeled traffic is metered and assigned by the appropriate PHB according to the

QoS),

wherein the step of handling further comprises the intermediated nodes

handling the labeled data according to the per-hop behavior group assigned to the

labeled data **(see page 6-7, paragraph 63-65,67; note that since the BR1 is**

labeled/mapped the PHB group label/parameter (i.e. streaming, conversation,

interactive, and etc.), it is clear that each intermediate router must handle the

labeled/mapped packet accordingly.)

Regarding Claims 8,12, and 19, Barany'900 discloses wherein the plurality

of traffic classes comprises conversational **(see FIG. 5, Conversational queues**

416,418-420), streaming **(see FIG. 5, Streaming queues 412,414)**, interactive **(see**

FIG. 5, Interactive queues 404-408) and background traffic classes **(see FIG. 5,**

Background queue 402), and

wherein the conversational class corresponds to an Expedited Forwarding

PHB group (see page 4, paragraph 43: note that conversational class is mapped to

the EF (expedited forwarding) PHB group),

the streaming class corresponds to a First Assured Forwarding (AF1) PHB

group (see FIG. 5, Streaming AF11, where the range is between AF11-AF43, is

the first assure forwarding group; page 4, paragraph 42-43),

the interactive class corresponds to a Second Assured Forwarding (AF2) PHB

group (see FIG. 5, Interactive AF21, where the range is between AF11-AF43 is

the second assure forwarding group, is the second assure forwarding group;

page 4, paragraph 42-43), and

the background class corresponds to a Third Assured Forwarding (AF3) PHB

group (see FIG. 5, background DE, default/best effort forwarding PHB, is the

third assure forwarding group; page 4, paragraph 41-43).

Regarding claims 9,13, and 20, Barany'900 discloses assigning the PHB

group to the labeled data based on any of a group consisting of: a source IP address, a

destination IP address, a source port number, a destination port number, an IP

protocol identification, and a packet size (see FIG. 5, Controller 430; see page 4,

paragraph 40; note that controller assigns/maps each DS labeled packet to PHB

group according to any of a group consisting of a flow label or traffic class label

of the IP v4 or v6 header.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Barany'900 in view of Gibson (U.S. 6,680,943).

Regarding claims 2 and 17, Barany'900 discloses defining the plurality of

delay-differentiated paths within the at least one SGSN and the at least one GGSN as

described above in claim 1 and 16.

Barany'900 does not explicitly disclose Multi-Protocol Label Switching

(MPLS) implemented within the at least one SGSN/node and the at least one

GGSN/node.

However, the above-mentioned claimed limitations are taught by Gibson'943.

In particular, Gibson'943 teaches defining the plurality of delay-differentiated paths

based on Multi-Protocol Label Switching (MPLS) **(see FIG. 1, MPLS networks 15)**

implemented within the at least one SGSN/node **(see FIG. 1, Abstract node AN 12)**

and the at least one GGSN/node **(see FIG. 1, Abstract node AN 13); see col. 9, lines**

1-25.

Note that Barany'900's SGSNs and GGSNs are the border routers/nodes of the

packet switching network. Gibson'943 teaches the abstract routers/nodes at the

edge/border of the MPLS network. In view of this, having the system of Barany'900

and then given the teaching of Gibson'943, it would have been obvious to one having

ordinary skill in the art at the time the invention was made to modify the system of

Barany'900, by providing MPLS mechanism in the border/edges nodes of the packet

switching network, as taught by Gibson'943. The motivation to combine is to obtain

the advantages/benefits taught by Gibson'943 since Gibson'943 states at col. 9, line

20-25 that such modification would provide a new/updated/different set of diverse

routes over the network, thereby spreading the load of the traffic over the network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 703-605-1531. The examiner can normally be reached on M-F: 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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PRIMARY EXAMINER